

RAIL

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Crossroad Way Command (CWC)

Tram and Light Rail Safety System

The challenge

Safe operation of trams and light trains amidst pedestrians, cyclists, and vehicles is becoming more and more important. As urban areas expand and traffic density increases, the need for innovative solutions to enhance the safety and efficiency of tram and light rail systems has never been more crucial. These essential modes of transportation require signalling solutions that are not only sophisticated but also highly adaptable to the dynamic urban environment. Effective communication interfaces and robust safety measures are paramount to maintaining operational safety and efficiency in these complex settings..

Introducing the Crossroad Way Command System (CWC)

At the forefront of addressing this challenge is the Crossroad Way Command System (CWC), a short range Two-way radio communication solution of innovation designed to:

- **Enhancing Train Safety and Network Availability** : Enhance the train operating safety and the availability of the train network. The solution commands the route through simple, standard, and real-time PLC digital Input/Output, utilizing a very fast and secure wireless dialogue between the two transceivers.
- **Versatile and Efficient Communication Solution for Multiple Applications** : Our universal solution is designed to support various applications. Equipped with automated Digital I/O and serial link RS 422 communication interfaces, it is perfect for short-distance dialogue and can also be utilized for a range of applications. These include train location applications (AVLS), automatic speed control, crossroad overpassing control (ATP), and Crossroad Priority Request (CPR).

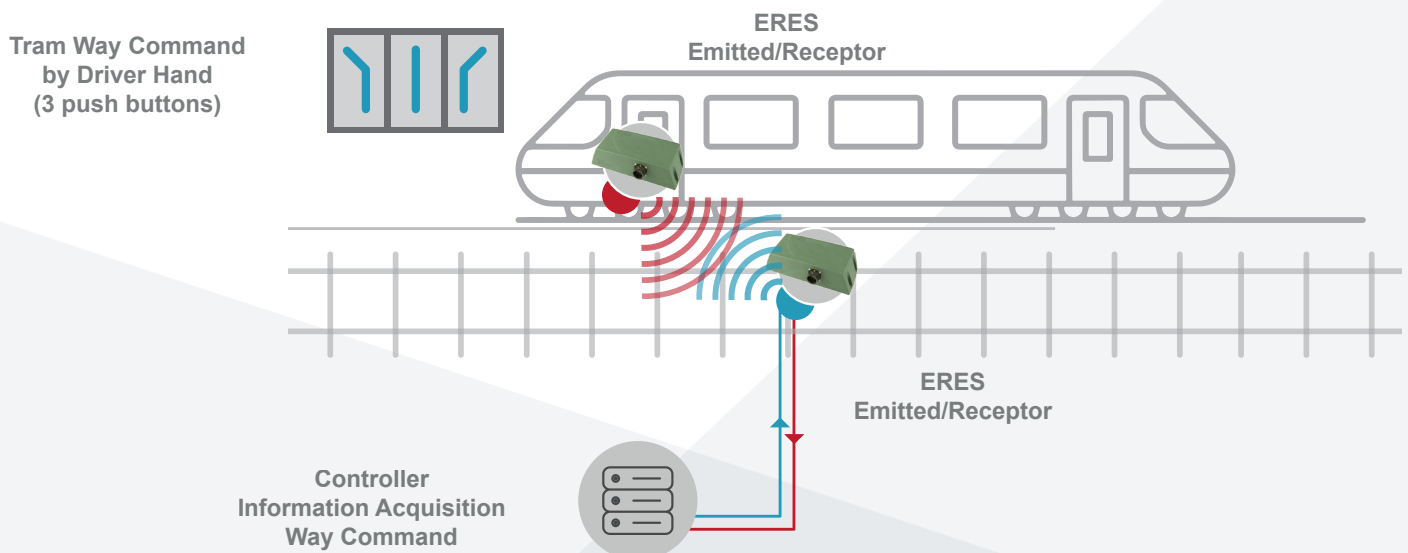
Modern Technology for Urban Mobility

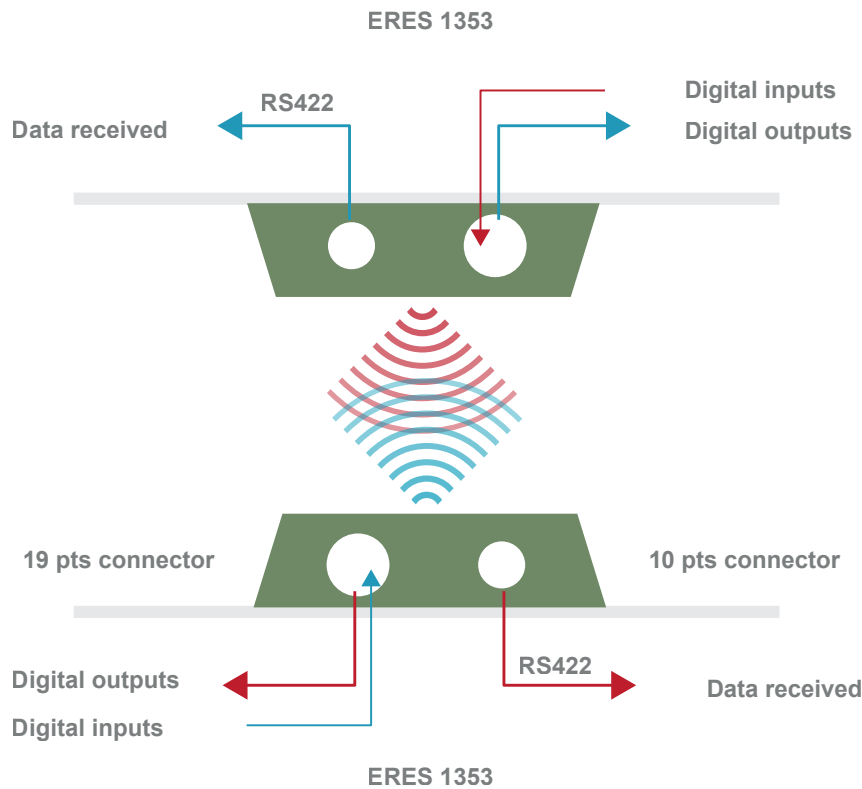
The CWC System, crafted with precision, employs a pair of magnetic transceivers, ERES 81 1353, with one fitted on board and its counterpart fitted trackside. This unprecedented magnetic sensor pair ensures safety and real-time bi-directional communication between the ground and trackside components.

When the two transceivers are within their facing fields, a 13.56 MHz half-duplex wireless dialogue, secured by a CRC 16, is established. With a wireless radio communication transaction time of just 4 ms, this solution allows for exceptionally fast and secure data exchanges of up to 32 bytes in both directions, even at train speeds of up to 200 km/h.

The ERES 81 1353 transceivers can send and receive data and control remote digital outputs from their counterparts.

The route commands of a tram are manually activated by the driver via a push-button interface, offering three command options: “straight,” “right,” and “left.” This information is sent to the onboard ERES 81 1353 transceiver through a digital input. When the on-board / ground ERES couple are in the facing field, the digital logic levels applied to the inputs of one ERES are duplicated to the outputs of the other ERES 81.





Simplifying Complexity

Our solution's brilliance lies in its simplicity and reliability. The transceiver couple work in harmony to transmit a safe signal to the Way Command Controller, ensuring trams to navigate the city's veins without interruption and with safety routine.

These applications demand secure, short-range bi-directional communication. The solution must operate in real-time, ensuring high safety standards, exceptional reliability, and continuous availability.

Solution benefits

Sustainable Reliability: Our TM RFID system exemplifies sustainability by offering a cost-effective solution throughout its lifespan, not just at the point of purchase. It is versatile, supporting a wide range of applications.

Multi-Functionality: Excelling in numerous applications such as ATP, CPR, AVLS, and more, our system demonstrates exceptional versatility.

Resilient Design: Engineered to endure the mechanical stress of heavy trams, our RFID trackside subsystem guarantees accuracy and reliability, effectively eliminating false or missed detections.

Simplicity and Compatibility: Featuring a standard digital output, our system integrates seamlessly into existing infrastructures without requiring additional signal conditioning.

All-Weather Performance: Designed to perform reliably in diverse weather conditions, our system ensures dependable operation when it's needed most.

Advanced HF Technology: Utilizing magnetic field inductive coupling, our system provides targeted protection, enhancing safety and operational security.

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TagMaster, an application-driven technology company founded in 1994, specializes in designing and marketing advanced sensor systems and solutions. Our expertise lies in utilizing radio, radar, vision, and wireless magnetic technology to cater to demanding environments. Our business is segmented into Traffic Solutions and Rail Solutions, offering innovative mobility solutions under the renowned brands TagMaster, Sensys Networks, and Citilog. Our aim is to enhance efficiency, security, and convenience while reducing the environmental impact within Smart Cities.

Headquartered in Stockholm, Sweden, with additional offices in the UK, France, and the USA, and dedicated agencies in the US and China, TagMaster has established a strong global presence. We primarily export to Europe, the Middle East, Asia, and North America, leveraging a vast network of partners, systems integrators, and distributors.

Our journey began in the RFID sector in 1994, where we quickly became pioneers in RFID technology. We expanded into the RAIL Activity, focusing on the AVLS Application 'Location' for trams and metros in outdoor environments. This expansion was a pivotal moment, demonstrating our adaptability and commitment to innovation.

In 2003, we undertook a significant project in collaboration with a prominent safety partner, designing our RFID ATP Solution. This project marked a major milestone, catering to prominent tram lines in France and Belgium and solidifying our market presence.

Our global clientele includes Metro, Light Train, and Tram Operators. We strategically target main rail integrators to ensure a broad and impactful reach. Our RFID solutions are globally recognized, with successful operations in regions including APAC and China.

To date, TagMaster has installed approximately 200 Tram and LRV lines worldwide, a clear indication of our expertise and the trust our clients have in us. These installations are meticulously detailed in our joint project reference table, showcasing our extensive experience and success in this domain.

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